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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,747	12/09/2003	Kazuhiro Tamura	ELPIDA 02USFP796 DIV	4303
27667	7590	04/22/2005	EXAMINER	
HAYES, SOLOWAY P.C. 130 W. CUSHING STREET TUCSON, AZ 85701			THOMAS, TONIAE M	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/731,747

Applicant(s)

TAMURA, KAZUHIRO

Examiner

Toniae M. Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) 18-20,23,24 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-17,21,22 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/260,484.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/10/04; 1/10/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is an official response to the amendment filed on 28 January 2005. Currently, claims 14-26 are pending.

Election/Restrictions

2. Applicant's election without traverse of the species of Group I, claims 14-17, 21, 22, 25 in the reply filed on 28 January 2005 is acknowledged. Claims 18-20, 23, 24, and 26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. *Claims 14-17, 21-22, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al. (US 2002/0022340 A1).*

Regarding claims 14-17

The Lin et al. pre-grant published application (Lin) discloses a method for fabricating a semiconductor device (figs. 3A-3F and accompanying text). The

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method comprises the following steps as recited in claim 14: forming a trench 50 for isolation in a semiconductor substrate 100 (fig. 3B and par. 20)); and forming an insulating film 43 to cover the trench. for relaxing an internal stress of the silicon substrate (fig. 3C and par. 21 and 25). The insulating film includes a first portion opposed to the bottom of the trench, and a second portion opposed to a side of the trench (fig. 3C), wherein a thickness of the first portion of the insulating film is different from a thickness of the second portion of the insulating film, as recited in claim 14 (fig. 3F). The second thickness of the second portion is substantially uniform, as recited in claim 14.¹

Second portion

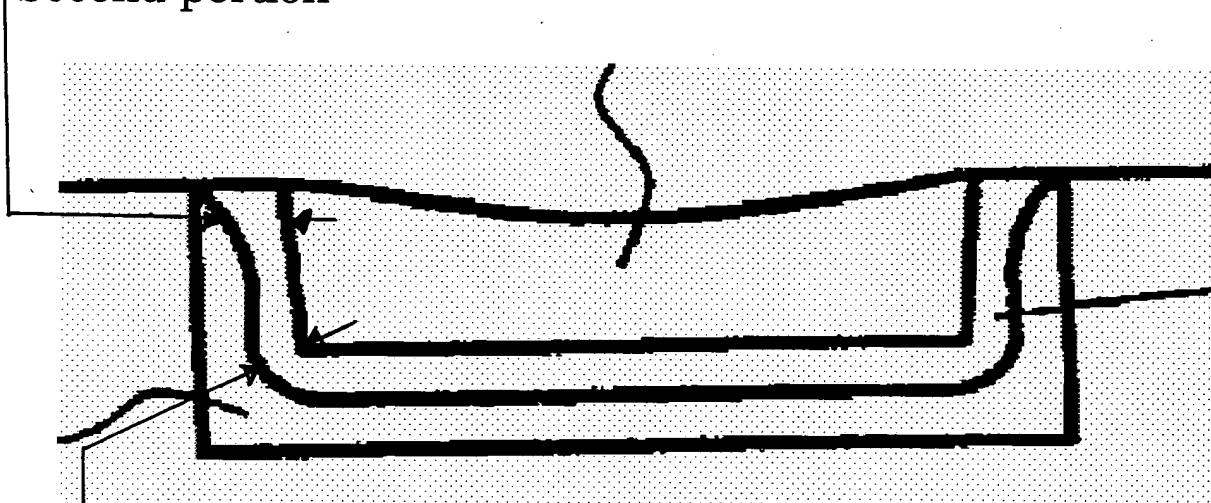


FIG. 3F

First portion

¹ The claim language "substantially uniform" does not require the second portion to have a

Figure 3F clearly shows that a thickness of the first portion of the insulating film 43 opposed to the bottom of the trench is thinner than a thickness of the second portion of the insulating film opposed to the sides of the trench, as recited in claim 15.

Another insulating film 42 is formed in the trench 50, such that the other insulating film exerts a compressive stress on the substrate, and the insulating film exerts a tensile stress on the substrate, as recited in claim 16 (fig. 3C and par. 21 and 25).

The insulating film 43 is formed of one selected from the group consisting of silicon oxide and silicon oxynitride, as recited in claim 17 (par. 21)

Regarding claims 21, 22, and 25

Lin discloses a method for fabricating a semiconductor device, the method comprising the following steps as recited in claims 21 and 25: forming a trench 50 for isolation in a semiconductor substrate 100 (fig. 3B and par. 20); forming a silicon oxide film 42 to cover the trench (fig. 3C and par. 21); and forming an insulating film 43 on the silicon oxide film, wherein the insulating film includes a first portion opposed to the bottom of the trench, and a second portion opposed to a side of the trench (fig. 3C and par. 21).

As discussed above with respect to claim 15, figure 3F clearly shows that a thickness of the first portion of the insulating film opposed to the bottom of the trench is thinner than a thickness of the second portion of the insulating

uniform thickness throughout its entire thickness.

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film opposed to a side of the trench, as recited in claim 21. The second thickness of the second portion is substantially uniform, as recited in claim 21.²

A thickness of the first portion of the insulating film is different from a thickness of the second portion of the insulating film, as recited in claim 25 (fig. 3F).

The insulating film 43 is formed of one selected from the group consisting of silicon oxide and silicon oxynitride, as recited in claim 22 (par. 21).

The insulating film is formed of one selected from the group consisting of silicon nitride and silicon oxynitride, as recited in claim 25 (par. 21, lines 3-6).

Response to Arguments

4. Applicant's arguments filed 28 January 2005 have been fully considered but they are not persuasive. The Applicant argues that:

Independent claims 14, 21 and 25, as amended, require wherein the second thickness of said second portion is substantially uniform." Lin et al., on the other hand, teaches a thickness of the second portion that dramatically decreases as you move away from the intersection with the first portion. Thus, Lin et al. cannot anticipate nor render obvious independent claims 14, 21 and 25 or any of the claims dependent thereon.

In other words, Applicant argues that Lin et al. does not anticipate, teach or suggest that the second thickness of the second portion is substantially uniform. It is the examiner's position that the claim language "wherein the second thickness of said second portion is substantially uniform" does not

² See Footnote No. 1.

preclude the thickness of the second portion as taught by Lin et al., since the phrase "substantially uniform" is a very broad term and does not require the second portion to have a uniform thickness throughout its entire thickness. Thus, even if only a tiny portion of the thickness of the second portion is uniform, Lin et al. fully meets the claim limitation.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toniae M. Thomas whose telephone number is (571) 272-1846. The examiner can normally be reached on Monday-Thursday from 8:30 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TMT

18 April 2005

A handwritten signature in black ink, consisting of a large, stylized 'M' followed by a horizontal line and a small upward curve.

Mary Wilczewski
Primary Examiner